

IN THE SPECIFICATION: Please amend the specification as follows, illustrated below in "clean" format:

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The present invention provides an effective procedure for manufacture of a catalytic converter with an end plate design incorporating full insulation of end plenum areas. Such insulation serves dual purposes. First, end plenum insulation conserves heat such that the operating temperature for the catalyst substrate is more easily obtained and maintained. Second, end plenum insulation reduces operating skin temperature, thereby precluding heat damage to parts external to the insulating material. As a further benefit, the device is readily manufactured using inexpensive components and providing a simple package with long durability.

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The particularly preferred structural support for securing an end plate 30 to a substrate 20 prior to size reduction of an outer shell 50 to the assembly is a securing mechanism 32 affixed to an inner side of the end plate. The securing mechanism 32 is made of a material suitable for use in high temperature environments and is of a diameter greater than that of the catalyst substrate 20. This allows for the securing mechanism 32, which can have any appropriate geometry such as annular, conical, cylindrical or other, to extend around an annular end portion of the substrate 20, as is shown in Figure 1, forming a gas shield to protect optional insulation material in the annulus of the plenum area.

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Figures 2 and 3 show a preferred shape and design for end plates used with the present invention. The catalytic converter design of the present invention advantageously allows for construction of a compact, cleanly assembled converter using the preferred, flat end plates. Each of these preferred endplates has, defined at any point within the plate, a hole 34 for connection with exhaust piping (not shown) carrying exhaust gasses. Further, each endplate preferably has, welded or otherwise permanently affixed to an outer periphery of one side of the flat end plate, an annular ring 32. In this, annular ring 32 may be affixed to an endplate by any known method, but is preferably securely affixed by tack welding.